

**Remarks/Arguments:**

In response to the Office Action dated March 7, 2006, the applicants offer the following remarks. Claims 1 through 15 remain pending in this application. Independent claim 1 has been amended, and independent claims 1 and 6 were previously amended to clarify that the pavement or roadway material is the radio signal conducting medium.

The Office Action rejected claims 1 through 5 under 35 U.S.C. § 103(a) as being rendered obvious and being unpatentable in view of U.S. Patent No. 6,285,858 ("Yoshida") and further in view of U.S. Patent Application No. US 2002/0128769 ("Der Ghazarian et al."). The Office Action further rejected claims 6, 7, and 10 through 15 under 35 U.S.C. § 102(e) as being anticipated by Yoshida.

Finally, the Office Action rejected claim 8 under 35 U.S.C. § 103(a) as being rendered obvious and being unpatentable in view of Yoshida and U.S. Patent No. 3,962,142 ("Freeman et al."), and rejected claim 9 under 35 U.S.C. § 103(a) as being rendered obvious and being unpatentable in view of Yoshida and U.S. Patent No. 5,460,649 ("Strassman").

Applicants respectfully contend that Yoshida does not anticipate or render obvious the pending claims alone or in combination with any of the cited references.

A. Claim 6 and Claim 1 Recite Patentable Subject Matter

As presented, claim 6 recites:

6. An intrinsic pavement transmitter and antenna, comprising a roadway, including:

(a) a suitable wearing course material; and

(b) an effective amount of radio frequency conductive material, sufficient to conduct radio frequency signals between at least two locations within the pavement, such that the radio frequency signals are conducted entirely within the pavement transmitter and antenna. (Emphasis added).

Similarly, independent claim 1, as amended and presented, provides:

1. A radio communications system comprising:

(a) an intrinsic pavement transmitter and antenna for conducting radio frequency signals;

(b) a first transmitter/receiver, at a first point along the intrinsic pavement transmitter and antenna, and in communication with an end-user; and

(c) a second transmitter/receiver, at a second point along the intrinsic pavement transmitter and antenna, and in communication with an end-user; wherein the intrinsic pavement transmitter and antenna conducts radio frequency signals between the first and second transmitter/receiver entirely within the pavement transmitter and antenna. (Emphasis added).

As explicitly provided within the two independent claims, the present invention discloses an intrinsic pavement radio frequency ("RF") transmitter and antenna, and a radio communications system having an intrinsic pavement transmitter and antenna such that the RF signals are conducted entirely within the pavement transmitter and antenna, or are conducted entirely through the conductive paving materials. There are no wire or other conductive materials coupling the first and second transmitter/receiver.

As specifically disclosed in the radio communications system of claim 1, both a first transmitter/receiver and a second transmitter/receiver are located at stationary points along the intrinsic pavement transmitter and antenna, or along the conducting medium. By design, the roadway paving material *is the conductor and transmitter of the radio frequency signals* between the first transmitter/receiver and the second transmitter/receiver. There are no coupling wires or other conducting elements other than the roadway paving material.

The support for this limitation is found at page 3, paragraph [0041] of the pending published application (U.S. Patent Application Publication No. US 2003/0036369) noting that "[t]he radio frequency 56 is conducted *along the intrinsic pavement transmitter and antenna* 10 until it reaches another transmitter/receiver." (Emphasis added).

The present invention claim 6 intrinsic pavement transmitter and antenna specifically further teaches a roadway including a suitable wearing course material (for example asphalt or concrete), with and having a necessary and effective amount of RF conductive material to transmit and receive radio frequency signals entirely through the pavement. That is, the roadway, with the RF conductive material imbedded in the roadway is the means of transmitting and conducting the RF signal between at least two signals in the roadway.

The Office Action notes that Yoshida discloses an "intrinsic pavement transmitter and antenna" such that "the intrinsic pavement transmitter and antenna conducts radio frequency signals between the first and second transmitter/receiver entirely within the pavement transmitter and antenna (col. 2, line 40 – col. 3, line 27, col. 3, lines 50-61)." located within the roadway. Applicants note however that as described in Yoshida, "the antennas 26 are *coupled in series*." Col. 2, lines 42 through 44 (emphasis added). The "coupling" as described and shown in Yoshida appears to be a hardwire connection between the antennas 26 and the devices 28 for splitting and combining the signals from the plurality of antennas 26. Col. 2, line 59 through col. 3, line 2. Accordingly, as described by Yoshida, the RF signal is not transmitted through the pavement using the pavement as the conducting medium, but the RF signal is transmitted between the antennas 26 using the wired coupling.

As further described in a second embodiment in Yoshida, and further showing the "coupling" of the antennas 26, a single "leaky conductive line 52 [is used] in place of the combined arrangement of the antennas 26 and the devices 28 (Fig. 2)." Col. 3, lines 53 through 56. Yoshida explains that the "leaky conductive line 52 has one end coupled to a terminator 60 and the other end coupled to the roadside control unit 30." Col. 3, lines 56 through 58. As such, the "coupling" of the antennas 26, or the use of a conductive line 52 to "couple" the terminator 60 and control unit 30 is, in either embodiment, by a hard wire type of element.

There is no disclosure or suggestion in Yoshida showing that the RF signal between the antennas 26 or between the terminator 60 and control unit 30 is conducted solely through the roadway material. Because Yoshida does not disclose or suggest the use of the roadway material as the conducting element or conducting medium, applicants contend that Yoshida does not anticipate or render obvious the claimed invention. Applicants respectfully request withdrawal of the noted rejection based upon Yoshida.

Similar to Yoshida, Der Ghazarian does not disclose a system in which communication occurs between a receiver and transmitter such that the RF signals are conducted entirely within the roadway pavement. Accordingly, applicants respectfully contend that Yoshida in view of Der Ghazarian do not render obvious the pending claims as amended, and accordingly requests withdrawal of the noted rejection based upon Yoshida further in view of Der Ghazarian.

The advantages of the subject matter of claims 1 and 6 are not attained or suggested by the Yoshida patent alone, or in combination with any of the other cited patents. This is because claims 1 and 6 contain features as described above that are not taught or suggested by the applied references. As explained by Judge Rich in *In re Civitello*, 144 USPQ 10, 12 (CCPA 1964), when a claimed feature is not disclosed by the reference, the reference cannot render the claim obvious:

Since Haslacher fails to disclose the feature of the claim relied on, we do not agree with the patent office that it would suggest modifying the Craig bag to contain the feature. The Patent Office finds the suggestion, only after making a modification which is not suggested, as we see it, by anything other than appellant's own disclosure. This is hindsight reconstruction. It does not establish obviousness. (Emphasis in original.)

Thus, applicants do not agree with the Office Action that the Yoshida patent supports a prima facie case of anticipation or obviousness.

B. Dependent Claims

Because claims 2 through 5, and 7 through 15 depend directly from patentable claim 1 and patentable claim 6, these dependent claims are also patentable. *See, e.g., In re McCarn*, 101 USPQ 411, 413 (CCPA 1954) ("sound law" requires allowance of dependent claims when their antecedent claims are allowed). Moreover, claims 2 through 5, and claims 7 through 15 are each non-obvious in view of the applied references.

C. Drawings

Applicants have commissioned a patent draftsman to formalize Figs. 1 through 4, and will submit the formal drawings under separate cover. Applicants note that there are no substantive issues or concerns relating to the drawings. Certain clarity of the lines and reference numbers were the only noted objections. Applicants respectfully request withdrawal of the drawings rejection.

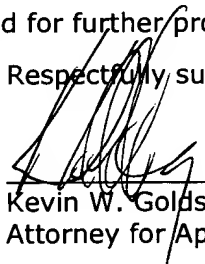
D. Conclusion

By this Amendment, pending claims 1 through 15 have been amended directly (or indirectly through an amendment to the two independent claims) to place the application in better condition for examination and allowance.

Applicants respectfully contend that the rejections under 35 U.S.C. § 102 and 35 U.S.C. § 103 should be withdrawn. Favorable action is earnestly solicited.

Finally, the Examiner is invited to call applicants' undersigned representative if any further action will expedite the prosecution of the application or if the Examiner has any suggestions or questions concerning the application or the present Response. In fact, if the claims of the application are not believed to be in full condition for allowance, for any reason, applicants respectfully request the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims pursuant to MPEP § 707.07(j) or in making constructive suggestions pursuant to MPEP § 706.03 so that the application can be placed in allowable condition as soon as possible and without the need for further proceedings.

Respectfully submitted,

  
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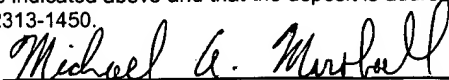
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